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ABSTRACT

Results of an experiment conducted to compare two teaching strategies showed somewhat higher test scores for college students taught by the lecture method, while students taught by the discussion method evinced higher interest and attendance. The experiment consisted of two sections of a night class in Social Psychology which were taught simultaneously, one by the lecture method, and the other by the discussion method. The sections were composed of students of relatively equal ability and were jointly taught by two professors. Identical and comprehensive examinations were used to evaluate competency achieved. A mixed teaching strategy employing both lecture and discussion is recommended, along with further research on the long range effects of the two methods. (STS)

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ED136741

A Comparison Of Two Teaching Strategies

LECTURE VS. DISCUSSION

In A Small Class Environment
At
Florida Southern College
McCoy Extension

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by

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IR004382

A PRACTICUM PRESENTED TO NOVA UNIVERSITY
(abridged)

May 15, 1975

ABSTRACT

An experiment is described which attempted a comparison of two teaching strategies - lecture and discussion - in the small night class environment at the Florida Southern College campus at Orlando. The experiment was undertaken as a part of a program to develop teaching effectiveness for both the institution and the instructors.

Two sections of the same course were conducted simultaneously using the respective two teaching strategies. The sections were composed of students having substantially equivalent academic ability. The effect of instructor personality differences was partially obviated by having two instructors share the teaching load of the two sections. Identical and comprehensive examinations were used to evaluate competency achieved.

Results of the experiment showed a slight superiority for students in the lecture method class. Interest and attendance record were noticeably superior for students taught by the discussion technique. Students taught by the lecture method apparently learned more but those taught by the discussion technique found it to be more pleasureable.

The report provides details of conduct of the experiment, results achieved, conclusions and recommendations.

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INTRODUCTION

This practicum report describes an experiment which was conducted to compare the two teaching strategies - Lecture vs Discussion - in the small, night-school environment of the Florida Southern College (FSC) extension program at Orlando. Dubin and Taveggia (1968) concluded, "There is no measureable difference among truly distinctive methods of college instruction when evaluated by student performance on final examinations."[4] Thus, the experiment to be reported, was not undertaken with the expectation that any dramatic "breakthrough" or new theory for teaching techniques would result.

Individual attitudes, however, continue to wield considerable influence in the conduct of educational institutions and their classrooms. Teachers and administrators often have definite opinions which are derived from their own personal experience. For example, there is a reoccurring controversy among the faculty of the FSC extension program concerning the relative merits of lecture and discussion as a teaching procedure. There is little doubt that the giving of lectures (and listening to them) is widely prevalent.

In general, it is thought that larger classes must use a lecture approach, but that the amount of lecturing may decrease and that of discussion increases in proportion to the diminishing size of the class. No real justifications are advanced for this concept except that it seems reasonable that this approach should be taken. The approach taken by individual instructors does not, however, seem to follow this principle. The instructors at McCoy are probably not unique in this respect. "Teachers often act as if they believe that students only learn when teachers are talking. Research on the school environment indicates that most periods of instruction are almost entirely taken up by teacher presentation."[5] It appears that many teachers, while professing a

belief that students should learn to express themselves, may defeat this purpose by their own inability to stop talking.

One reason for the emphasis on presentation may be that many teachers have no training in college teaching. Their concepts have been almost entirely derived from their own experiences as students. "College teaching is perhaps the only profession (with the exception of the proverbially oldest in the world) for which no training is normally given or required."[1] "There is no professional training program which develops pedagogic skills in a systematic way. Indeed there is very little knowledge about which teaching strategies work with which students."[6]

The adjunct faculty, as well as the students at Florida Southern, are unique in a number of respects when compared to their full time day school contemporaries.[3] For example, because they are part time employees, a grossly incompetent teacher is quickly eliminated. Tenure is non-existent and a class assignment does not achieve reality unless sufficient student registration has been achieved. Although effective teaching may be hard to test or define, inadequacy is almost immediately evident. With a term length of 7 weeks an inadequate instructor suddenly finds that only a few of the more recent or naive students have enrolled for his class. His recent student victims have communicated a most effective type of instructor evaluation. By contrast, there are a few instructors whose classes are consistently oversubscribed.

The writers of this report fall into the latter category. However, the similarity does not extend further to either their personalities or classroom performance. Mr. Hedrick normally teaches business and psychology oriented courses and he requires that his students become thoroughly involved as

participants and as contributors to conduct of a course. Mr. Byers normally teaches physics and engineering related courses. While encouraging class participation, he has been known to remind his students that the laws of physics are not a matter of opinion. Both instructors appear to be at least moderately successful as indicated by their students' attitude and achievements.

Thus, it has been felt that a practicum in applied learning theory offered an opportunity to the participants for a test of the two diametrically opposed teaching strategies - Lecture vs. Discussion - as they might apply in the small class environment of the Florida Southern Extension Campus. It was considered that the results of such an experiment could have implications for future studies to be conducted and for possible attitudes in regard to instructor indoctrination and evaluation at Florida Southern. Also the potential for development of the participants - to broaden their experience and viewpoint - was considered important.

The opportunity was considered unique for several reasons.

1. The length of the school term at FSC i.e. seven weeks, facilitates conduct of such an experiment and its subsequent evaluation.
2. Mr. Hedrick, in his position as assistant coordinator of the branch campus, has certain freedoms in scheduling classes, in counseling potential students, and in assignment of instructors.
3. The normal teaching strategies of the two participants differ both by inclination and as required by their normally differing course material.
4. Both instructors are sufficiently flexible that they may vary their procedures when appropriate.
5. The classes at Florida Southern may be kept reasonably small such that the discussion strategy may always be applied when desired.

6. The typical night student at Florida Southern is mature and adaptable.

7. The course and subject material might be chosen with a view toward enhancing the participants knowledge and experience in an area directly relatable to their own involvement as a student in the core module in learning theory and application. (The course selected was Social Psychology SO/PS206).[9]

I. BACKGROUND AND SIGNIFICANCE

Florida Southern College was founded as the Florida Conference College by The Methodist Church in 1885. The college opened with four teachers and fifty-eight pupils. It remained at Leesburg until the end of the century. In 1902, the school was opened as the Florida Seminary at Sutherland, now Palm Harbour, on the Gulf Coast. The institution prospered, and in 1906 the name was changed to Southern College. It then had a faculty of seventeen and an enrollment of 310.

In 1921, the trustees selected Lakeland as the permanent site of the college. Under President Phenus H. Alderman, two buildings were erected and Southern College opened its doors on the shores of Lake Hollingsworth in 1922. The name was changed to Florida Southern College in 1931 and accreditation achieved in 1935.

Throughout this entire period, Florida Methodists have assisted enthusiastically in establishing and maintaining institutions of learning because they recognized education as an integral part of the Christian mission of the church. It has been the conviction of these supporters that such institutions should guide students in Christian discipleship as they seek to relate themselves, as children of God, to the world about them. The main campus of FSC at Lakeland now enrolls approximately 1500 students.

Florida Southern College is nationally accredited by the Southern Association of Colleges and Schools and also is fully accredited by the University Senate of the United Methodist Church, the Board of Regents of the University of the State of New York, and by the State of Florida for certification of teachers.

Florida Southern College was invited to establish an off campus extension program at the McCoy Air Force Base in Orlando, Florida in 1960. The purpose of the program was to provide educational opportunity for both Air Force Military and Civilian personnel stationed here. A full program of courses and credits leading to a BS or BA was requested. The Air Force made special arrangements with the college to provide "accelerated" seven week terms whereby a student could complete a three semester hour credit course in seven weeks by attending two, three hour evening sessions per week. Personnel were moved frequently and the more traditional fourteen to sixteen week semesters were considered impractical. The program was very successful, at least in terms of military personnel acceptance and their performance on competency examinations. It became possible for even temporary personnel to acquire accredited college level instruction and college credits. The off campus students have consistently scored high in the CLEP, NTE, and GRE tests. A large number of military personnel were able to acquire credits and a number of degrees have been granted. During the mid sixties, in order to bolster sagging enrollments resulting from defense cut-backs, a few defense workers from local industry were recruited. Admission was restricted to defense workers because of security clearances required for access to the military facility. However, the emphasis and impetus of the program remained the military student who accounted for over 50 percent of the enrollment.

Suddenly, in April 1973, the Department of Defense announced the closing of the Air Force Base at Orlando.

To protect students who could stay with the program and to give it new impetus, a decision was made to open enrollment and recruitment to the general public. Security clearances ceased to be a problem with the exodus of the

military. Fundamental changes in administrative policy and a new governance procedure[2] resulted in student involvement and publicity which has caused enrollments to rise to a level higher than ever before. The student body, once predominantly composed of military personnel stationed on the base, is now predominantly composed of civilian and permanent residents of the local community.

The night college program introduces, to the school and to the instructor, special situations which do not exist or exist to a very minor degree, at the FSC day campus. The typical night student at McCoy is already employed but has come to the realization that an education is a necessity and that he must be willing to pay the cost in time and money. He is eager and brings a more mature attitude than do many day students. However, there are also disadvantages. Most night programs run for three hours and start at 6:30. The students hurries home from work, arrives home at 5:30, has dinner, picks up his books and is off to school by 6:00. The trip averages 30 minutes, so he arrives at 6:30 along with other students who have just gone through a similar exercise. He is tired, after working all day and may have studied until past midnight doing a homework assignment the previous night. His mind is still computing on work and home experiences. The instructor now has the challenge of making the material he is to present sufficiently interesting that the student will be able to stay awake and divert his attention from home and work.

The main campus of Florida Southern is over sixty miles distance from Orlando. Thus, the regular faculty of the college are seldom available to the extension program. While evening programs at other colleges typically use a high proportion of the daytime faculty, Florida Southern at McCoy, recruits its entire adjunct faculty from the local community. There are no full time

instructors and most of the instructors have other full time employment. The instructor, like the students, may be tired, but he must motivate himself to provide motivation to the students. It is in this environment that the practicum was undertaken.

II. PROCEDURE

A summary of the experiment procedure follows:

1. The Course "Social Psychology SO/PS206 was scheduled for the term beginning March 3 and ending April 19. Counseling and registration were intended to secure 30 to 40 students. Thirty-three students actually registered.
2. Registration having been completed, the students were separated into two sections based upon an equivalent distribution of student grade point averages.
3. It was explained to the students that the class had been divided into two sections and that two instructors would be sharing the teaching load of the two classes.
4. Section A was organized and taught with emphasis placed upon discussion and student involvement. Mr. Hedrick handled this section for the first three and one-half weeks of the seven week session.
5. Section B was taught with emphasis upon lectures from instructor's notes. Mr. Byers initiated this class and continued to teach for the first three and one-half weeks of the seven week term.
6. At the end of three and one-half weeks, the instructors exchanged teaching roles. Section A was taken by Mr. Byers and Mr. Hedrick took Section B. The teaching strategy for each section remained the same. Only the instructor was changed. This feature of the procedure was intended to minimize the effect of teacher personality differences since both sections would have the two different instructors.
7. For all practical purposes, except for teaching strategy, the 2 sections proceed in parallel. Lesson material was scheduled and closely

controlled. A mid-term test and a Final Examination were identical for both sections.

8. Accurate records of class attendance were kept to provide additional information regarding effect of the two alternative teaching strategies.
9. A questionnaire was prepared and administered to the students, after completion of the course, to determine their reactions to the two different teachers and the teaching strategy which was applied to them.

Further details of the procedure follow:

A. CLASS COMPOSITION

(1) Grade Point Average

The classes were divided on the basis of student's grade point average at the time of registration.

Section A had 4 students with GPA between 3.5 and 4.0
8 students with GPA between 3.0 and 3.5
3 students with GPA between 2.5 and 3.0
1 student with GPA between 2.0 and 2.5
1 student with GPA below 2.0 (See Figure 1)

Section B had 4 students with GPA between 3.5 and 4.0
7 students with GPA between 3.0 and 3.5
4 students with GPA between 2.5 and 3.0
1 student with GPA between 2.0 and 2.5 (See Figure 2)

(2) Student profile

Figures 1 and 2 depict the two groups in terms of age, sex, and race. The two sections are very similar.

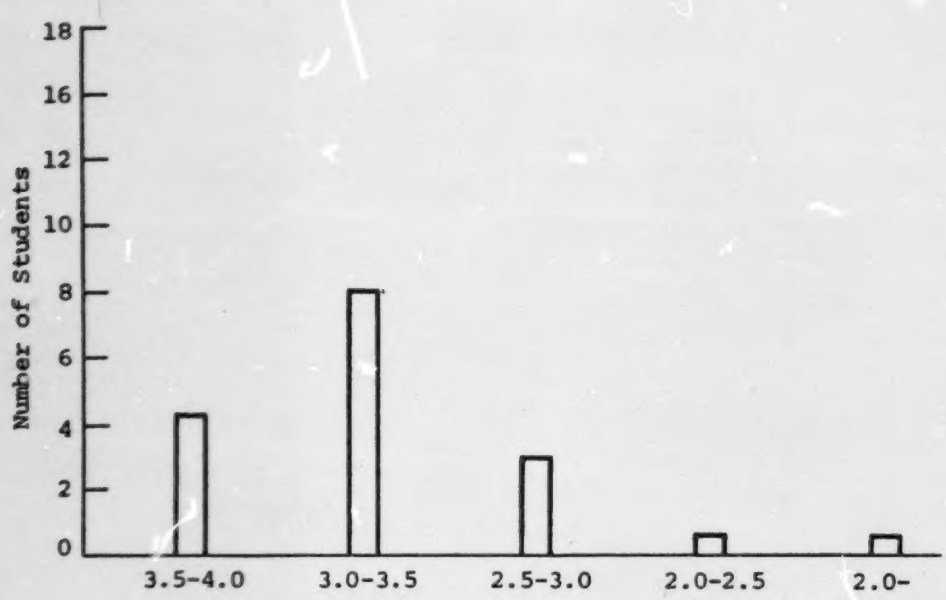

Figure 1 Grade Point Average
(Section A)

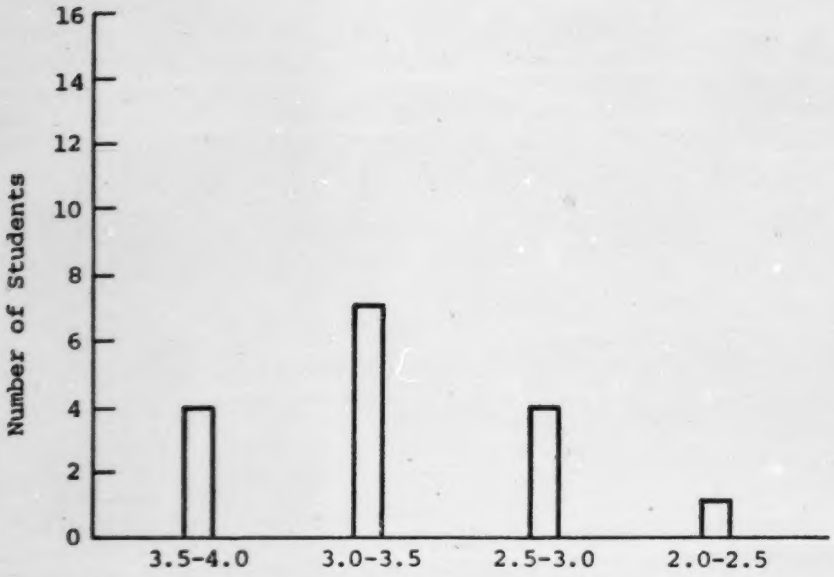

Figure 2 Grade Point Average
(Section B)

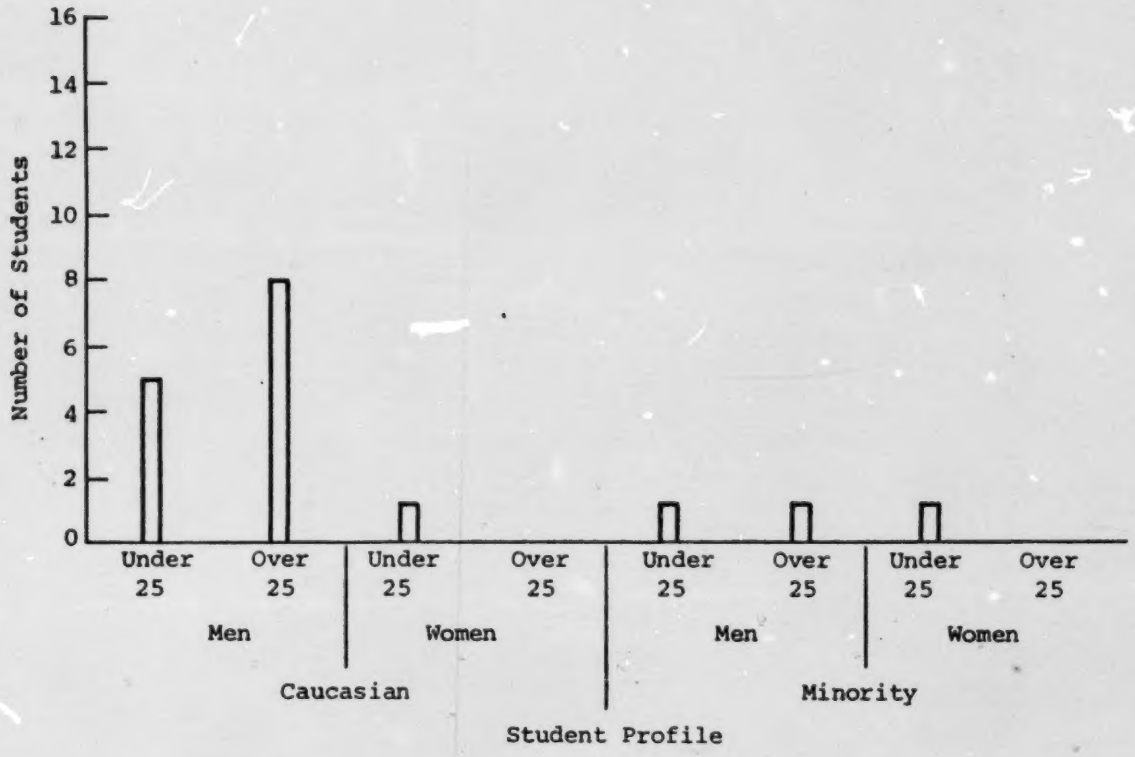

Figure 3 Student Profile (Section A)

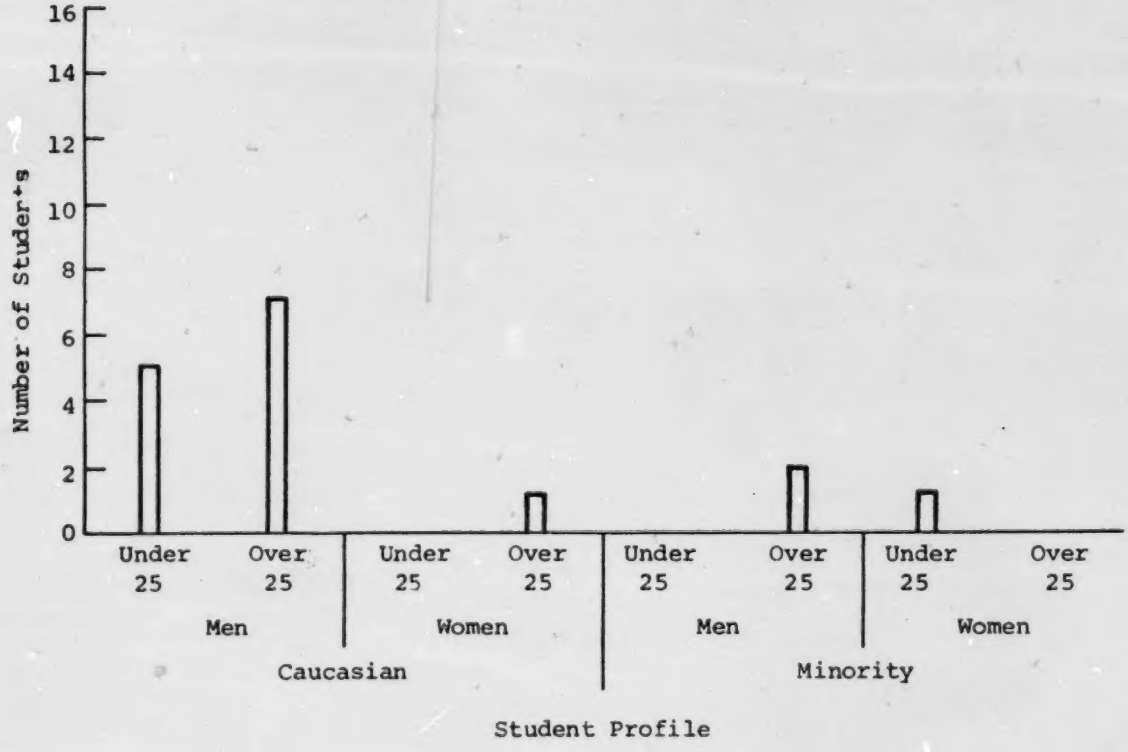

Figure 4 Student Profile (Section B)

B. CONDUCT OF COURSE

(1) Seating arrangement

Because of a shortage of classrooms, it was decided that the teacher's lounge would be utilized for Section A. The furniture was not re-arranged and remained relatively informal as shown in Figure 10. By contrast the conventional seating arrangement of Section B is shown in Figure 11.

(2) Course Plan

The course outline and schedule shown in Figure 12 was agreed upon by both instructors.

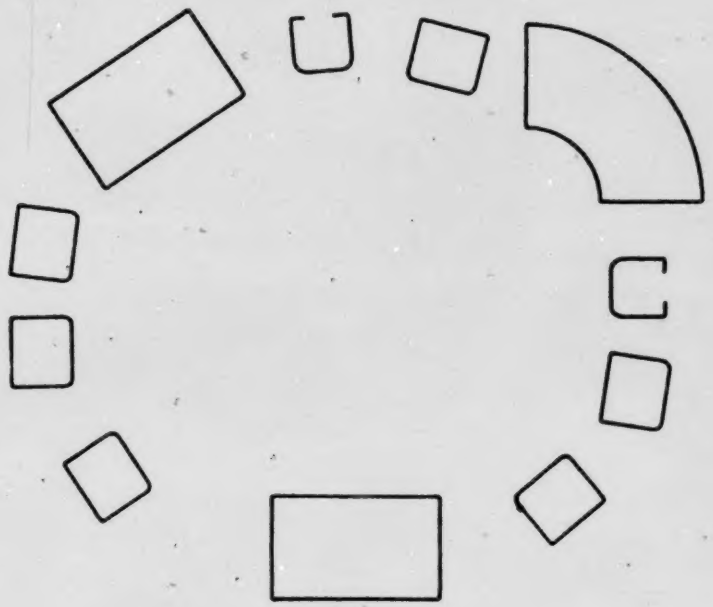

Figure 5 Discussion Section Classroom

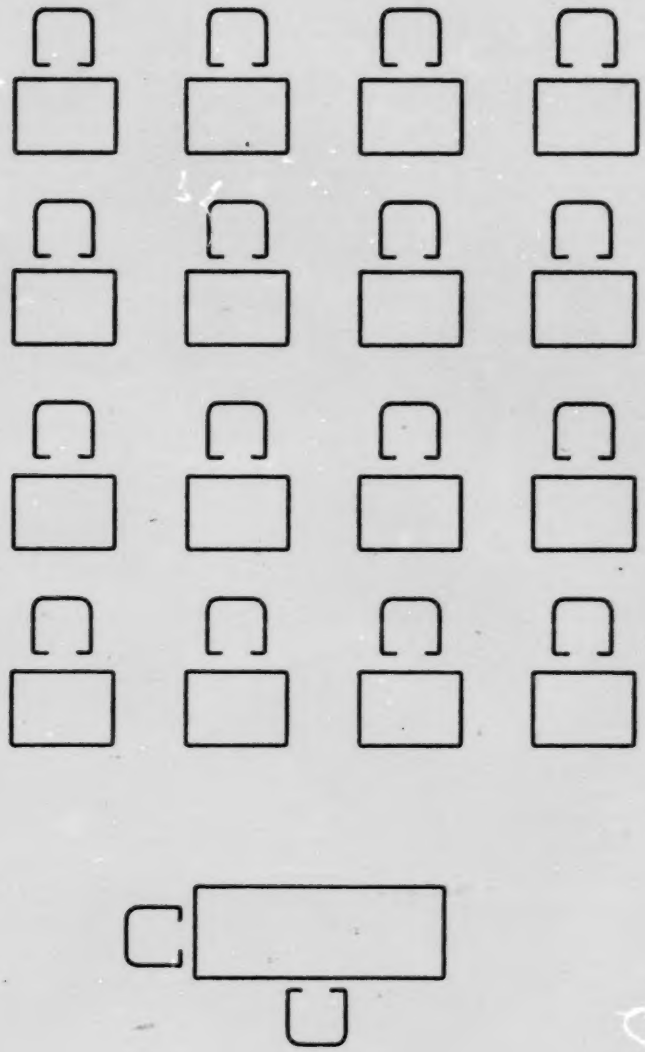

Figure 6 Conventional Seating Arrangement of Section B

Social Psychology - (SO/PS2[illegible]
Instructors R. Hedrick - W. Bye[illegible]

Chapter	Title	Date
1	Theories, In Social Psychology Movie: Man and His Culture	March 4
2	Methods Studying Human Behavior	
3	Our Assumptions About the Nature of Man	
4	Moral Development - and Development of Motives Read Complete take home exam on these three chapters and turn in March 18th	
5	Cooperation and Competition Movie: Sibling Rivalry and Parents	March 7
6	Aggression, Violence, and War Movie:	March 11
7	Racial and Social Class Differences in Abilities, Motivation, and Personality Movie: Portrait of the Inner City	March 11
9	Attitudes and Altitude Change	March 14
8	Social Class and Ethnic Difference in Language Development Movie: Portrait of an Inner City School	March 18
10	Theories, Attitude Change Movie: Feeling of Rejection	March 18
11	Attitude and Change Through Inter Group Contact Movie: Common Fallacies about Group Differences	March 18
12	The Nature of Social Change Movie: Social Acceptability	March 21
13	Authoritanism, Obedience Political Repression	March 25
	Mid term exam	
14	Affiliation, Anxiety, Attraction and Love Movie: Marriage is a Partnership	March 28
15	Social Perception Movie: Social Classes in America	April 1

Figure 7 Course Outline

Chapter	Title	Date
16	Conformity and Social Influence Movie: Beginnings of Conscience	April 4
17	The Social Psychology, Leadership, and Organized Effectiveness Movie: This is Marshall McLuhan The Media is the Message	April 8
18	Drug Effects and Drug Use, Police Dept. Film	April 11
19	The Social Psychology of Sexual Behavior Movie:	April 15
20	Read Final Exam	April 18

TEXT: Social Psychology in the Seventies, Lawrence S. Wrightsman. Published by Brooks/Cole Publishing Co., Belmont, California.

Figure 7 (Cont)

(3) Role of Instructor(s)

In section A, individual students were scheduled to provide presentations. Subject material, as shown in the course outline, was presented and followed by discussion. Every student presented at least once during the term. The instructor acted to promote, guide and mediate. No lectures or presentations were given by the instructor.

In section B, the instructor did all presentation. Notes and the textbook itself were used and referenced. The students were encouraged to interrupt for questions but all interchange was between the students and instructor.

(4) Examinations

Each section was given identical examinations at the times scheduled.

The initial take home quiz covering chapters 2, 3, and 4 was given, primarily, to bring the students "up to speed" and to insure that each student studied necessary background material. It was not considered important to an evaluation of the two techniques since it was assigned early in the course and was open book and unsupervised. See Appendix A.

The mid term exam and the final exam consisted of objective type questions as shown in Appendix B and C. The use of many objective questions was considered necessary to achieving a comprehensive evaluation of subject knowledge. These tests were supervised and timed.

(5) Final Course Grades

It was agreed, by both instructors, that all quizzes would be reviewed jointly in determining exam grades. The students in section B (Lecture) received final course grades which were based entirely upon the written exam performance. The students in section A also received grades for their individual presentations. These presentation grades, as assigned by the instructor, were averaged with their quiz grades in determining their final course grades. These grades are not considered in evaluating the experiment, since only one section required presentation.

C. STUDENT QUESTIONNAIRE

The questionnaire shown as Figure 8 was given to each student at the conclusion of the course. Student identification was not required. Two responses were requested from each student - one for each of the two instructors.

INSTRUCTOR AND COURSE EVALUATION

Section A - B -

This questionnaire will provide information to compare the effectiveness of teaching techniques. Your class has been exposed to two instructors. Section A was instructed by the discussion method and Section B by the lecture technique. The answers to the following questions will be helpful in evaluating your reactions to the course.

There are two identical evaluation forms one for Mr. Byers and one for Mr. Hedrick. Please fill out both forms.

The scaling is based upon a 1 2 3 4 5 gradation. Number 1 is least while number 5 is greatest. Please circle, on the 1 to 5 scale, your response to the following questions.

Circle the answer which most nearly describes your satisfaction with the course as it relates to Mr. _____

1.	Teaching Competence	1	2	3	4	5
2.	Knowledge of Subject	1	2	3	4	5
3.	Ability to Motivate Students	1	2	3	4	5
4.	Coverage of Subject	1	2	3	4	5
5.	Preparation of Material	1	2	3	4	5
6.	Use of Visual Aids	1	2	3	4	5
7.	Presentations Techniques	1	2	3	4	5
8.	Starting Time	1	2	3	4	5
9.	Keeping Continued Class Interest	1	2	3	4	5
10.	Fairness of Tests	1	2	3	4	5
11.	Amount of Outside Work	1	2	3	4	5
12.	Encouraged Learning	1	2	3	4	5
13.	Graded Fairly	1	2	3	4	5
14.	Graded Promptly	1	2	3	4	5
15.	Compared to other classes how do you rate this one for					
	(a) Learning experience	1	2	3	4	5
	(b) Pleasant experience	1	2	3	4	5

Figure 8 Student Questionnaire

III. RESULTS

A. EXAMINATION GRADES

The procedure for conduct of the two classes (Section A - Discussion; Section B - Lecture) has been discussed in Part II - Procedure.

1. Take Home Quiz Results

The results of the Take Home test (shown in Figures 9 and 10) were almost identical. However, this is not considered of great significance since essay questions were used and the students had access to books, friends, or other reference material. There was no noticeable duplication of answers. Mr. Byers and Mr. Hedrick graded the papers jointly and each agreed upon the grades assigned.

Results for the take home quiz were:

Section A (Discussion)	8 - A's
	5 - B's
	3 - C's
	1 - Incomplete
Section B (Lecture)	7 - A's
	6 - B's
	3 - C's

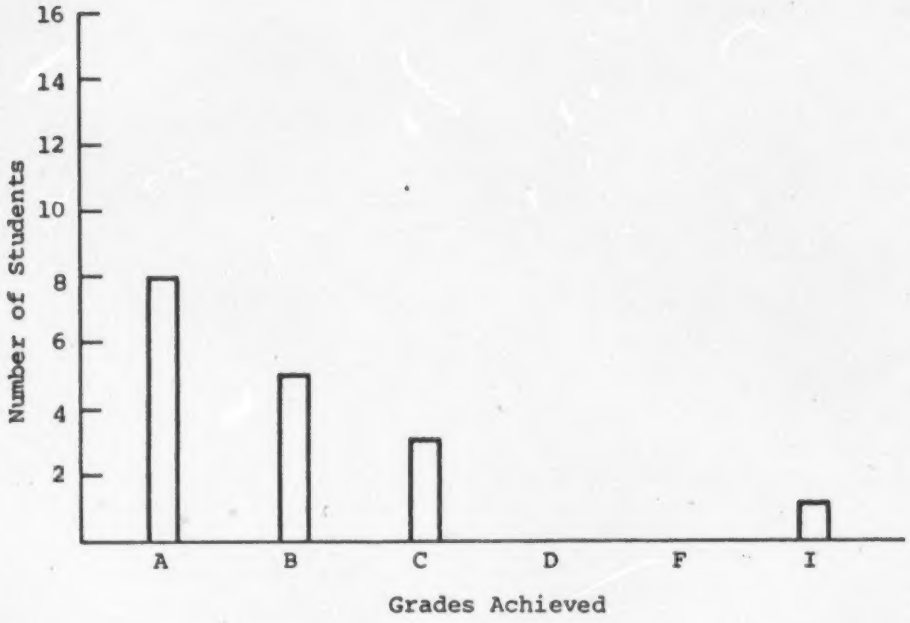

Figure 9 Results of Take Home Quiz (Section A)

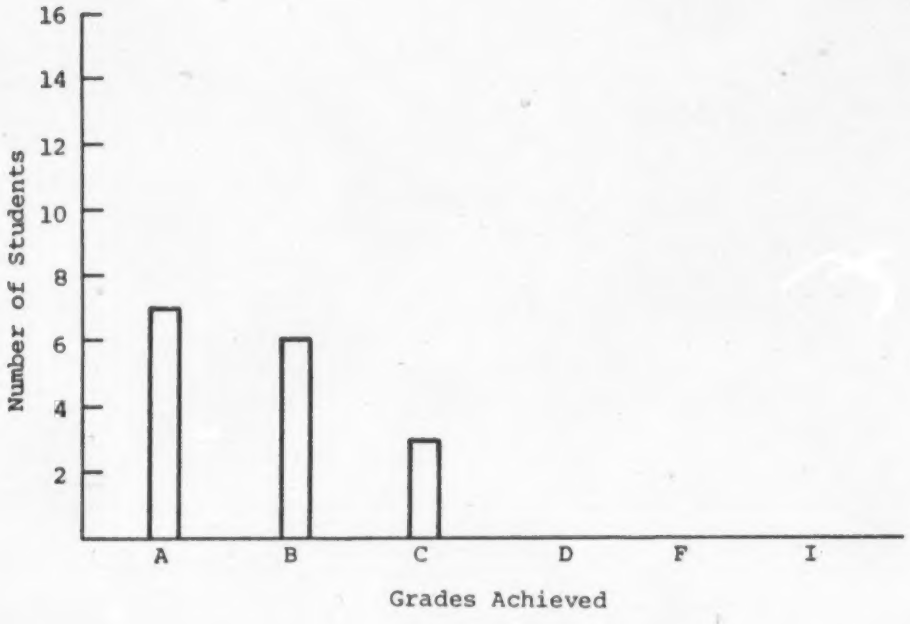

Figure 10 Results of Take Home Quiz (Section B)

2. Mid Term Results

The mid term was much easier to grade since it was an objective type test. The test was composed of 75 questions and covered Chapters 5 through 12.

The results of the mid term were:

Section A (Discussion) 3 - A's
7 - B's
4 - C's
2 - D's
1 - Incomplete (See Figure 11)
Class Average 2.69

Section B (Lecture) 5 - A's
6 - B's
4 - C's
1 - D's (See Figure 12)
Class Average 2.94

The same student who had failed to turn in his Take Home from Section A again was absent on the night of the mid-term. It was learned that he was working considerable overtime and was not attending to course work. He was advised to drop the course.

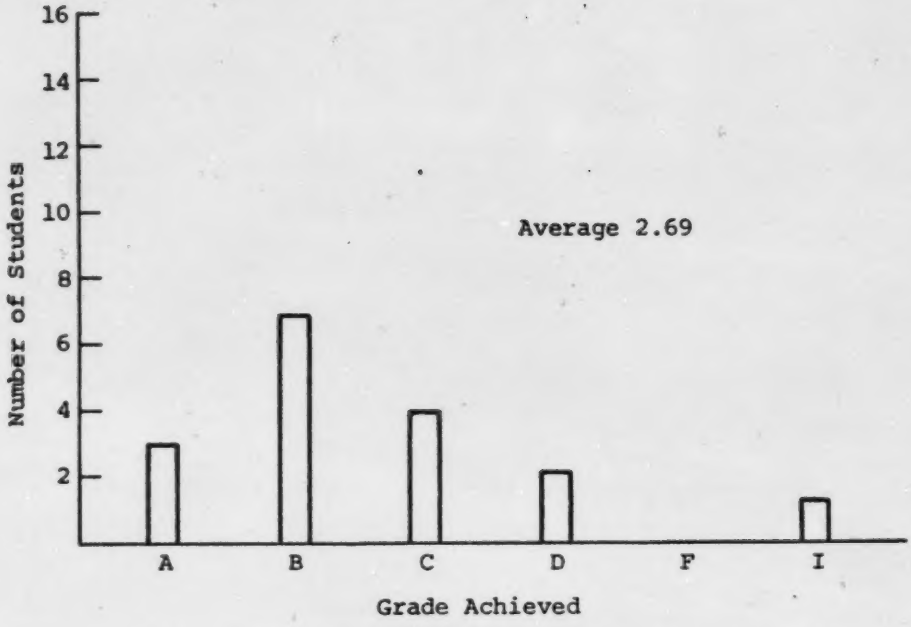

Figure 11 Results of Mid Term Exam (Section A)

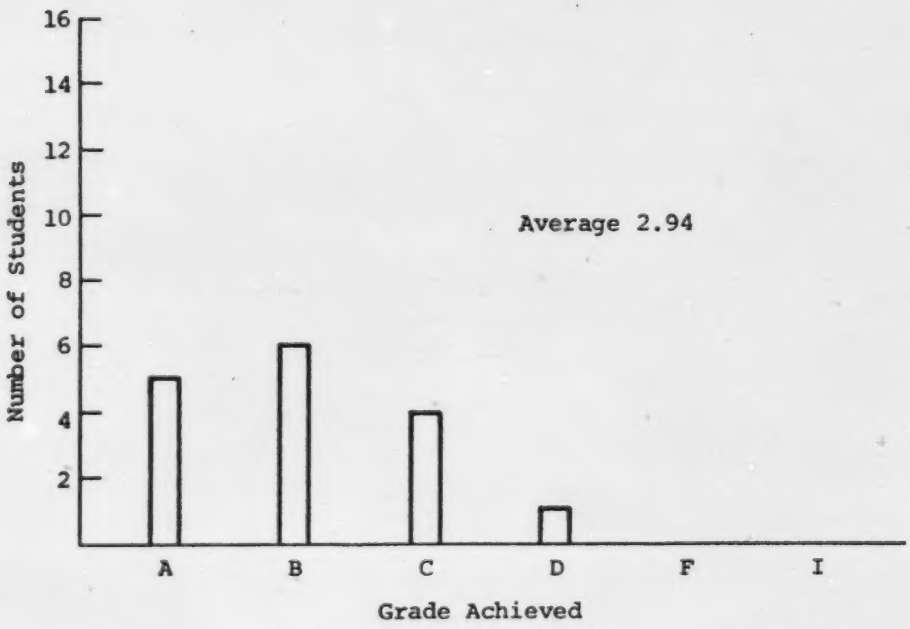

Figure 12 Results of Mid Term Exam (Section B)

3. Final Exam Results

The final examination consisting of 150 objective type questions is reproduced in the appendix.

Grades achieved were as follows:

Section A - Discussion	3 - A's	
	6 - B's	
	5 - C's	
	2 - D's	Class Average 2.62
Section B - Lecture	3 - A's	
	10 - B's	
	3 - C's	Class Average 3.0

Results of the final examination are shown in Figures 13 and 14.

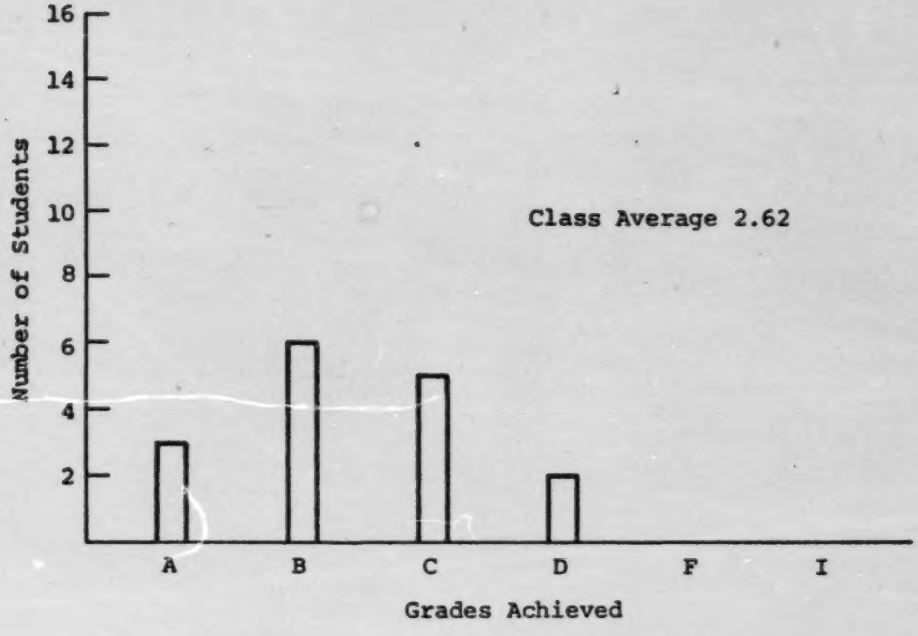

Figure 13 Results of Final Exam (Section A)

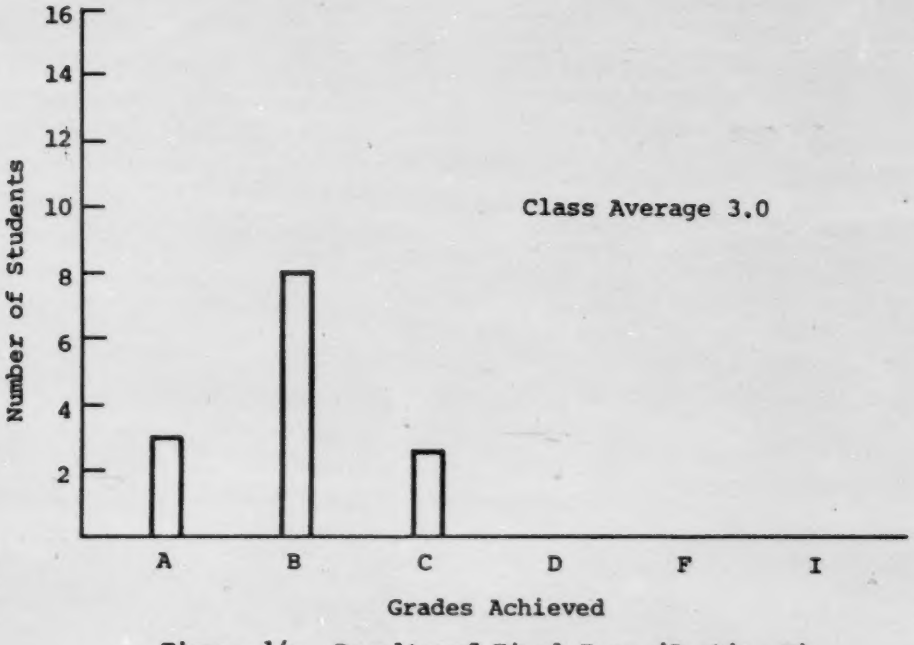

Figure 14 Results of Final Exam (Section B)

B. ATTENDANCE RECORD

The attendance record proved to be most interesting. Attendance in section A held up much better than Section B.

Session	Absences Section A	Absences Section B
1	0	0
2	1	1
3	0	2
4	4	7
5	1	3
6	0	3
7	0	1
8	1	2
9	0	3
10	0	3
11	0	2
12	0	2
13	1	1
14	0	0

This record is portrayed graphically in Figures 15 and 16.

The excessive number of absences in both sections for the th session is attributed to a severe thunderstorm which occurred that night.

The attendance for section A was 96.4 percent while for section B it was 86.6 percent.

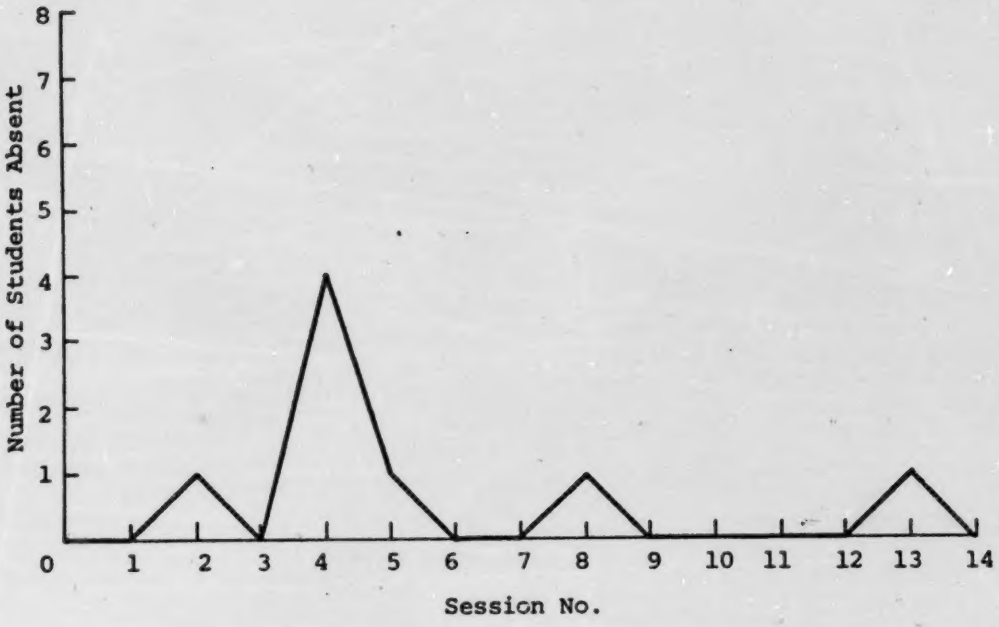

Figure 15 Section A Attendance

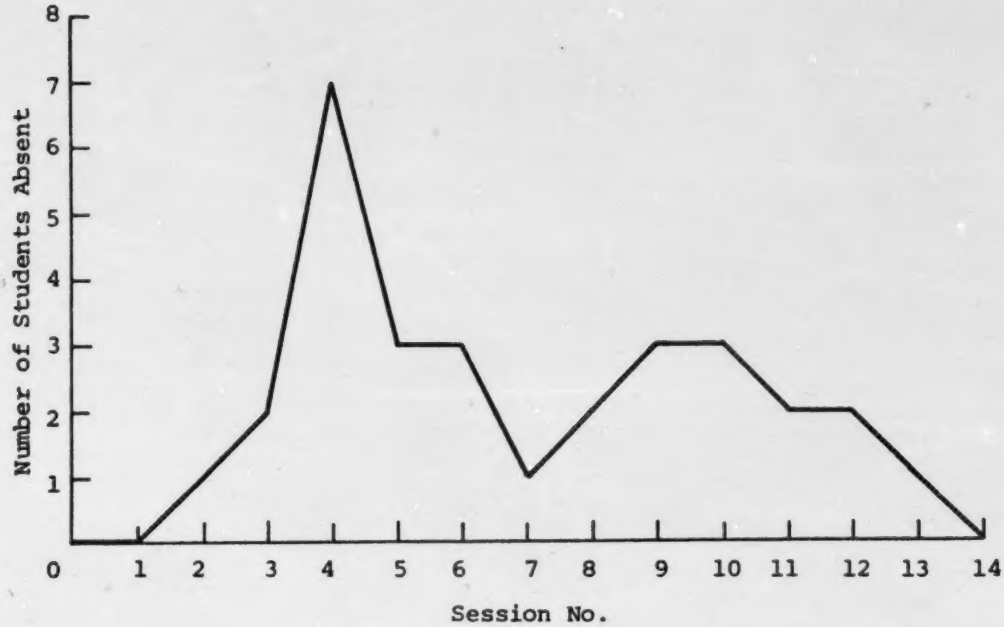

Figure 16 Section B Attendance

C. RESULTS OF QUESTIONNAIRE

	Section A										Section B									
	Byers					Hedrick					Byers					Hedrick				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
1. Competence as teacher		3	10	2	1		1	1	9	5		4	9	2	1		1	2	9	4
2. Knowledge of Subject			4	9	3		1	9	5	1		1	5	8	2		1	10	4	1
3. Ability to Motivate Students		4	5	6	1			1	8	7		3	6	6	1			2	9	5
4. Coverage of Subject			1	11	3	1	5	8	2			1	2	10	2		2	4	8	1
5. Preparation of Material			7	8	1		4	7	5				8	6	2		3	9	4	

COMMENTS

1. The students obviously preferred Mr. Hedrick as a teacher. Mr. Hedrick scored 9 superiors, 8 excellents, 3 good, and 2 acceptable, while Mr. Byers scored 2 superiors, 4 excellents, 19 good, and 0 poor.
2. It is clear that more students thought of Mr. Byers as having greater knowledge. For most of them, it was their first experience with Mr. Byers.
3. Mr. Hedrick scored extremely high in the area with 12 superiors, 16 excellents, and 5 good. Mr. Byers had 2 superiors, 12 excellents, 11 good, and 7 acceptable.
4. In subject coverage Mr. Byers was rated higher by both sections: 5 superior, 21 excellents, 4 good, and 1 acceptable, while Mr. Hedrick scored 1 superior, 10 excellent, 12 good, 7 acceptable, and 1 poor.
5. Mr. Byers was also considered superior in preparation. Mr. Byers received 3 superiors, 14 excellents, 15 good. Mr. Hedrick scored 0 superior, 9 excellent, 16 good, and 7 acceptable.

C. RESULTS OF QUESTIONNAIRE

		Section A										Section B									
		Byers					Hedrick					Byers					Hedrick				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
6.	Use of Visual Aids	2	7	4	3				7	7	2	3	8	2	3		1	2	11	1	1
7.	Presentations Techniques		2	10	3	1		1	8	6	1		2	10	4		8	7	1		
8.	Starting Time				13	3		2	11	3				1	14	1		3	11	2	
9.	Keeping Continued Class Interest		4	8	4				1	9	6		5	9	2				1	10	5
10.	Fairness of Tests		1	4	8	3	2	6	6	2			1	5	9	1		6	8	2	

COMMENTS

6. Mr. Hedrick was thought to make greater use of visual aids even while teaching by the lecture method. His scores were much higher in this area. This difference was unanticipated and should be avoided in future experiments.

7. Apparently this was a poorly understood question. Many students remarked that they just marked anything because they did not understand the question.

8. Mr. Byers is very prompt and formal about starting time. Some students remarked that because of Mr. Hedrick's rather informal attitude, it was difficult to tell exactly when the class officially started. Mr. Hedrick was, in reality, also prompt.

9. Mr. Hedrick had 11 superiors, 19 excellents, 2 good. Mr. Byers had 0 superiors, 6 excellent, 17 good, 9 acceptable. Students who are involved, and kept active are less likely to become drowsy or distracted.

10. In determining the fairness of tests Mr. Byers scored much higher with 4 superiors, 17 excellents, 9 good, and 2 acceptable. Mr. Hedrick had no superiors, 4 excellent, 14 good, 12 acceptable, and 2 poor. This result was particularly interesting since both instructors used identical tests.

C. RESULTS OF QUESTIONNAIRE

		Section A										Section B									
		Byers					Hedrick					Byers					Hedrick				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
11.	Amount of Outside Work	1	3	9	3		4	7	5			1	3	10	2		4	8	3	1	
12.	Encouraged Learning		4	9	3				2	10	4		4	9	2	1			4	9	3
13.	Graded Fairly	1	4	8	3		1	5	8	2			2	9	3			6	9	1	
14.	Graded Promptly			3	9	4		4	8	4				4	10	2		1	10	3	2
15.	Compared to other classes how do you rate this one for																				
	(a) Learning experience		2	12	2			2	12	2			3	10	3			1	10	3	2
	(b) Pleasant experience		4	10	1			1	13	2			5	10	1				3	11	2

COMMENTS

11. It is evident that the students feel that they must work harder under Mr. Hedrick.

12. In this area Mr. Hedrick scored 7 superior, 19 excellent, 6 good, while Mr. Byers received 1 superior, 5 excellent, 18 good. Mr. Hedrick is well known to many students while Mr. Byers was "new" to most of them.

13. The grading of tests is always a point of discussion with many students. Mr. Byers received much higher marks than Mr. Hedrick in this area. It may be significant that grading was, in reality, done as a joint affair of the participants.

14. It was indicated that Mr. Byers returned graded papers more promptly than did Mr. Hedrick. Actually, this was well controlled and was identical.

15. In the learning experience and pleasant experiences areas: Learning experience - Mr. Byers had 0 superiors, 5 excellent, 22 good, and 5 acceptable. Mr. Hedrick received 2 superiors, 5 excellent, 22 good, and 1 acceptable. Pleasant experience was a different story. Mr. Hedrick received 2 superior, 12 excellent and 15 good. Mr. Byers scored 0 superior, 2 excellent, 20 good, and 9 acceptable. It is obvious, at this point, that instructor personality, has a distinct effect on student attitude.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The results of this experiment indicate that the class section taught by the lecture method scored somewhat higher in competency than did the class taught by involvement and discussion. However, the attendance record for the better performing class was much less consistent. It would appear that the students taught by the discussion technique were more interested and found the experience to be more stimulating. Also the effect on student attitude of difference in instructor's personality was clearly evident. It might be concluded that students subjected to the lecture technique learned more but those taught by the discussion technique had more fun. (One student in the lecture class remarked that he could have learned just as much by staying home and reading the text.)

Probably the most important conclusion to be inferred is that there may not be a best technique. Motivated students will probably learn under the guidance of a competent instructor regardless of technique utilized. However, it does seem reasonable that the experience should be made as painless as possible and it is here that there may be a distinct edge for the discussion method.

B. Recommendations

1. As the experiment progressed, it became clear that the students were pleased that the school and the instructors considered their learning experience to be important. The classic Hawthorne experiment is also applicable to the classroom.[7] It is therefore recommended that the FSC faculty be encouraged to demonstrate similar interest to their students. It is possible that the administration might establish some type of incentive program or award for encouraging the faculty to vary their techniques and to be innovative in the classroom.

2. Although the sample size was too small and the variables too uncontrolled, there is some evidence that a compromise approach is superior. i.e. the lecture method, tempered with moderate informality and discussion may be optimum. Thus, it may be reasonable to recommend that instructors at FSC consider a variation of their pace for this reason as well as those described in 1 above.

3. A very important potential outcome of the practicum could not be observed or measured. "What is the long range impact of the alternate strategies?" It is recommended that a post test - after a year or more be incorporated as a necessary part of any future experiments to compare teaching strategies. The practicum participants intend, if feasible, to arrange such follow-up for this practicum.

4. One definite recommendation for immediate action is possible. The students were clearly impressed by the use of an evaluation questionnaire. Also, the results of the questionnaire were somewhat revealing to the practicum participants. Thus, it is recommended that evaluation be made a definite routine for the instructors in the FSC as a vehicle toward improving the quality of instruction. As a secondary recommendation, since it may be distinctly advantageous for an instructor to know how he "rates" in comparison to other instructors, a procedure for making his relative standing known should be adopted.

5. A final recommendation is directed to the practicum participants. The challenge and experience provided by this practicum is recognized by both participants as beneficial and rewarding. It is recommended that the writers be alert to similar opportunities for self development and recognize that a practicum is not required to profit from such opportunity.

V. INDIVIDUAL SUMMARY

Robert E. Hedrick

This project has been of great value to me. I had always been convinced that the discussion method of teaching was far superior to the lecture method. However, in establishing two groups as similar as possible and comparing the two techniques, it was indicated that perhaps the lecture method was slightly more effective.

I have learned as a result of analyzing the questionnaire that one of the major pitfalls of the discussion technique is in not adequately covering the course material. The discussion can easily get out of hand and rambling will take valuable class time. This can be reflected in examination grades. I am now more than ever aware of this and have developed a check sheet of major issues which must be covered for each class.

I have no doubt that student involvement leads to a far greater degree of class interest. Now the question comes up, which is more important - passing the tests or creating active student interest. Perhaps the best indication that I have received, as a result of this study, is that both are equally necessary and should be merged as a teaching technique. From my own observation (Mr. Byers concurs), it appears probable that most teachers do not implement the discusssion technique because it requires:

1. A strong leadership role (when necessary) to avoid individual monopoly, that is one or more students dominating the class.
2. More preparation on the part of the instructor. He must be acutely aware of the outside world in relation to this subject because his students will be and will have an opportunity to show it (rather than just the text).

3 A stronger involvement with each student knowing when to bring them into the discussion and how to stimulate their responses.

The question of discussion versus lecture has not been settled as a result of this study. However, the door has been opened at FSC and teachers and students are more aware of the schools' interest in them. Both have displayed greater interest in the subject, the school, and what is more important, each other.

INDIVIDUAL SUMMARY

William S. Byers

The writer, as an instructor of physics and engineering technology, has typically utilized presentation and lecture for most classroom teaching. Abstractions and conclusions, which may have required many years (or centuries) to evolve must be presented to the students. Outside reading and study is normally not completely effective without large amounts of instructor interpretation. Thus presentation and demonstration is appropriate to a greater degree than might be possible, for example, in social studies. There simply may not be sufficient time to expend in opinionated and uninformed discussion. Student involvement in engineering and physics teaching occurs during individual problem solution and laboratory experimentation.

This practicum - to compare two teaching strategies - was perceived as an opportunity to acquire greater insight into the "art" of teaching in addition to its providing a vehicle for self instruction and development in subject material of the core module in "Learning Theory and Application." While the comparison itself may have been inconclusive, I believe that the experiment, from this point of view, may be considered successful. I am already observing in my technical courses, that I can find more opportunity for student involvement and classroom interchange.

As for results of the experiment itself, there were some indications that the lecture method resulted in greater competency as indicated by student performance on objective tests. There were also indications that the higher performing students found less pleasure in the experience. One conclusion which may be derived is that a combination or compromise between the two methods would be a desireable technique. There is also, the obvious conclusion that students are individual in their needs and desires for instruction. This

experiment has left no doubt that the students perceive their instructors as having individual differences.

Snyder (1968) described one characteristic that distinguishes the truly great teacher from his colleaques. "He is capable of evoking in his students a sense of the epiphany that underlies every common concept or idea. His learners will be convinced, when he presents an idea to them, that they have observed and participated in the act of creating that idea. The same quality of evocation is striking in the great teacher's evaluation of his learners' responses."[8]

This practicum has provided experience bringing greater proximity to an understanding of such a teacher-learner relationship. The teacher and learner may both strive for, though they may never reach, a truly congruent interchange. Thus, the type of experience provided may be recommended to other teachers. The concept of adapting teaching to the learner's needs might thereby become a more practical than academic concept.

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